

IP / ETHERNET PATIENT-NURSE CALL SYSTEM

Alech IP/Ethernet Patient-Nurse Call System is fully compliant with the VDE834 part 2 standards and operates on a BUS network configuration between room terminals (bed, bath & overdoor light) and a Room Controller or Concentrator (C-01ND) or the **Intelligent Door Warning Light and Room Controller LT-01ND**, these control devices allow the room functions (bed, bathroom terminals and overdoor warning lights) and connect to a **MAIN BUS LINE**, which allows the interconnection between the various rooms in a floor or area and connects to the LAN network by means of a **BUS / IP / ETHERNET INTERFACE**, therefore arrive to the control PC with the NCS Monitoring software, the wireless, Wi-Fi or other lines (always via the LAN/ETHERNET).



This configuration allows each room to operate autonomously even in the event of a malfunction on the second bus line.

The system keeps active alarms stored even in the event of a power failure and subsequent power return.

The bed extension key buttons are manufactured with antibacterial silicone, with an IP67 protection degree, patient reassurance LEDs and luminescent keys.

Electrical Connections

First of all, it will be necessary to carry out the wiring of the entire system in a workmanlike manner, also respecting the following information:

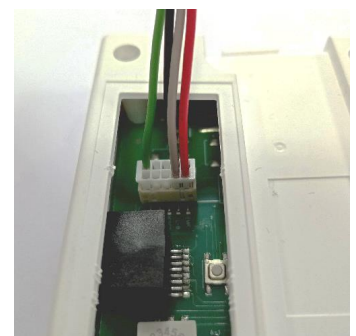
The system wiring must be isolated from other external voltage cables coming from the rest of the electrical system, both to comply with electrical regulations and to avoid interference with the system's signal / power supply line.

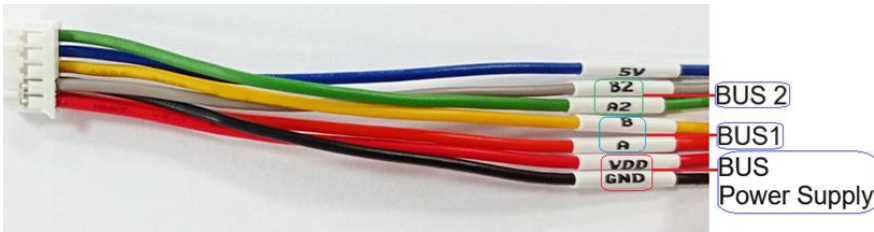
Use only the original power supplies supplied by Alech srl (code AL058)

- Do not modify the cables of the connected devices.
- The colors of the cables and the label must be the same.
- This system works with two different data bus lines: BUS1 (internal rooms) & BUS2 (external rooms)

BUS CONNECTION

It is a BUS connection, therefore each device at each room must be interconnected with 4 wires, two for power supply and two for the signal, so CAT 6 wire is fine, this cable must reach all devices, including the overdoor warning Lights (acting as a room controller)...

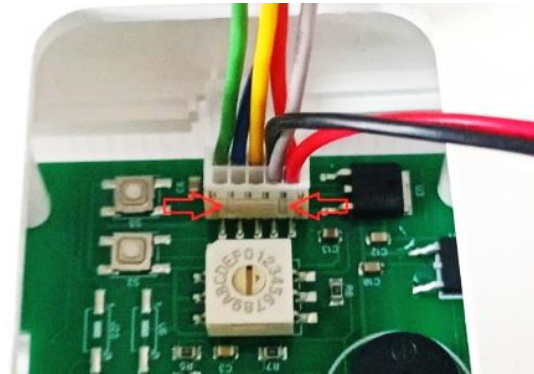
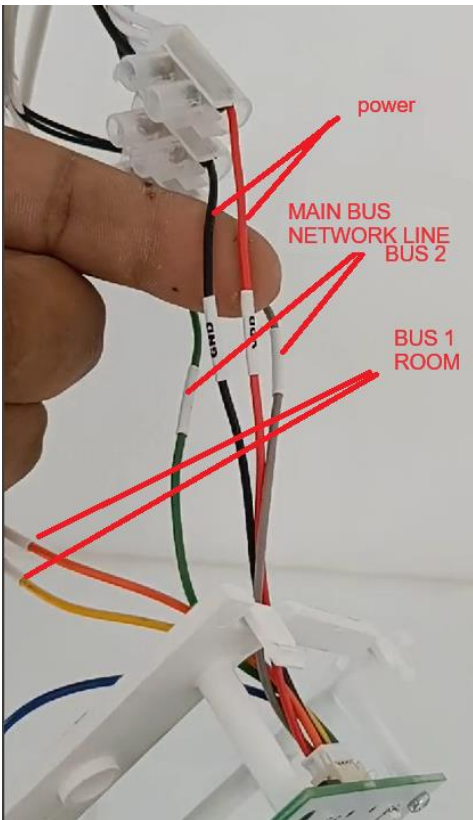




The overdoor warning lights should be then interconnected one to the other through a BUS2 line always on the same BUS network.

BUS2 cable will then reach the nurse station, once there it will have to be

interfaced BUS/IP ETHERNET, which eventually would be coupled to an IP SWITCH to allow the connection to the nurse monitors and eventually to the IP network, obviously one or more power supply units must be also connected at each ward or area.



MAIN POWER LINE

All devices, in the corridor and in the room, must be powered by the same line with the AL-58 power supply.

Connect all the RED cables (labeled VDD) to each other and all the black cables (labeled GND) to each other, taking care not to mix them together.

Use a 15AWG 2x1.5m2 power cable in order to contain the voltage drop at the point furthest from the power source which must not drop from a minimum of 6.5V; the maximum distance from the AL58 power supply must not exceed approximately 50 m, the main suggestion is to install the power supply in the center of the connection points.

If necessary, it is possible to add an additional AL-58 power supply by bringing the furthest point closer and making sure to connect the negative pole in common with the other power supplies.

Use a 15AWG 2x1.5m2 type power cable.

Power supply units should be distributed at equal distances along the whole length of the BUS

One floor (or department) can have a maximum of 150 rooms.

One floor (or department) can have an average of 50 rooms per power supply unit.

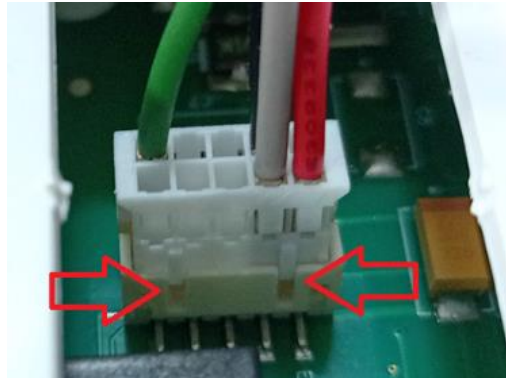
A building can have 14 floors (or 14 departments).

The total length of the bus per power supply pair must not exceed 500 m.

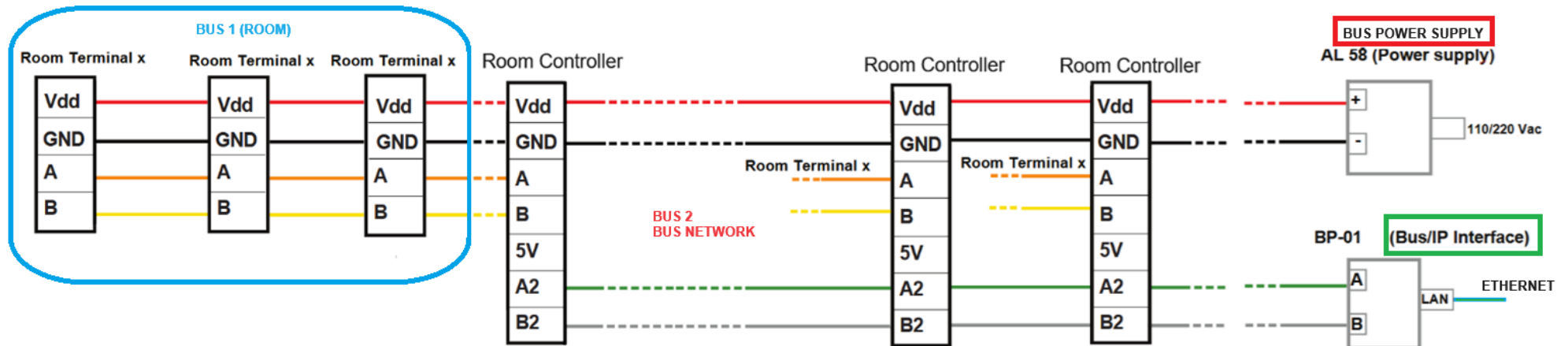
Beyond that, a bus extension must be used as well as other power supply sets.

The length of the connection between the bus power supply and the furthest device must not exceed 250 m.

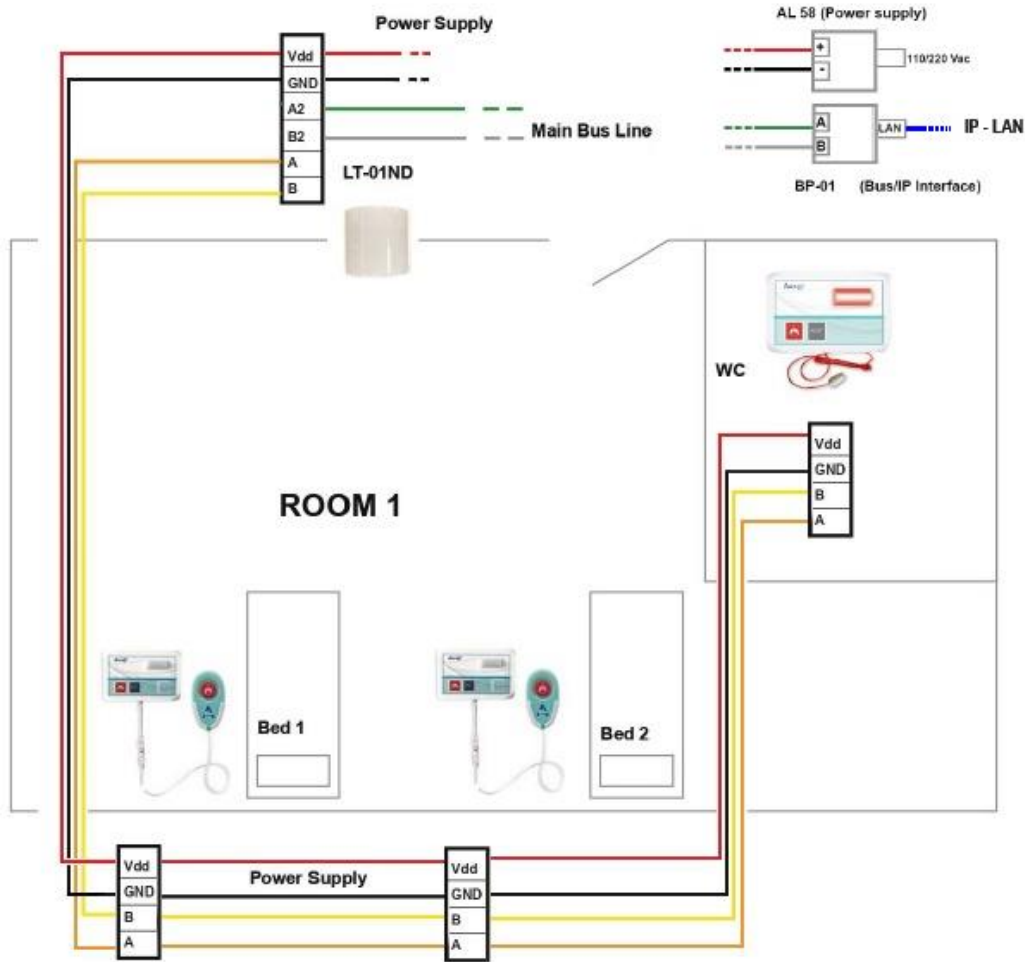
Pay attention to the right polarity and correct cable connections power supply, BUS comm when connecting any device (call terminals, warning lights, room controllers, BUS / IP interfaces) to avoid any possibility of burning their electronic circuits.
Control the wiring and plugging them on the devices.



BUS NETWORK



Room installation:



AL-58

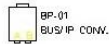
AL-58 POWER SUPPLY : 110/220 vAC IN 6.5V OUTPUT

110/220Vac



BUS / IP INTERFACE

BP-01 : BUS - IP CONVERTER



TWISTED BUS DATA CABLE
2 CORE 22 AWG

TWISTED BUS DATA CABLE
2 CORE 22 AWG

BUS 1

BUS 2

TWISTED BUS DATA CABLE : 22 AWG 2 CORE

TWISTED BUS DATA CABLE : 22 AWG 2 CORE

80m MAX cable LENGTH for BUS Data Cable



LT-01ND

LT-01ND : INTELLIGENT OUTDOOR LAMP

Power Supply Cable
2x1,5mmq 15 AWG

2x1,5mmq 15AWG power cable

MAX cable length from power supply (AL-58) must be 40 m



IP SWITCH

each IP switch and POE IP switch must be interconnected

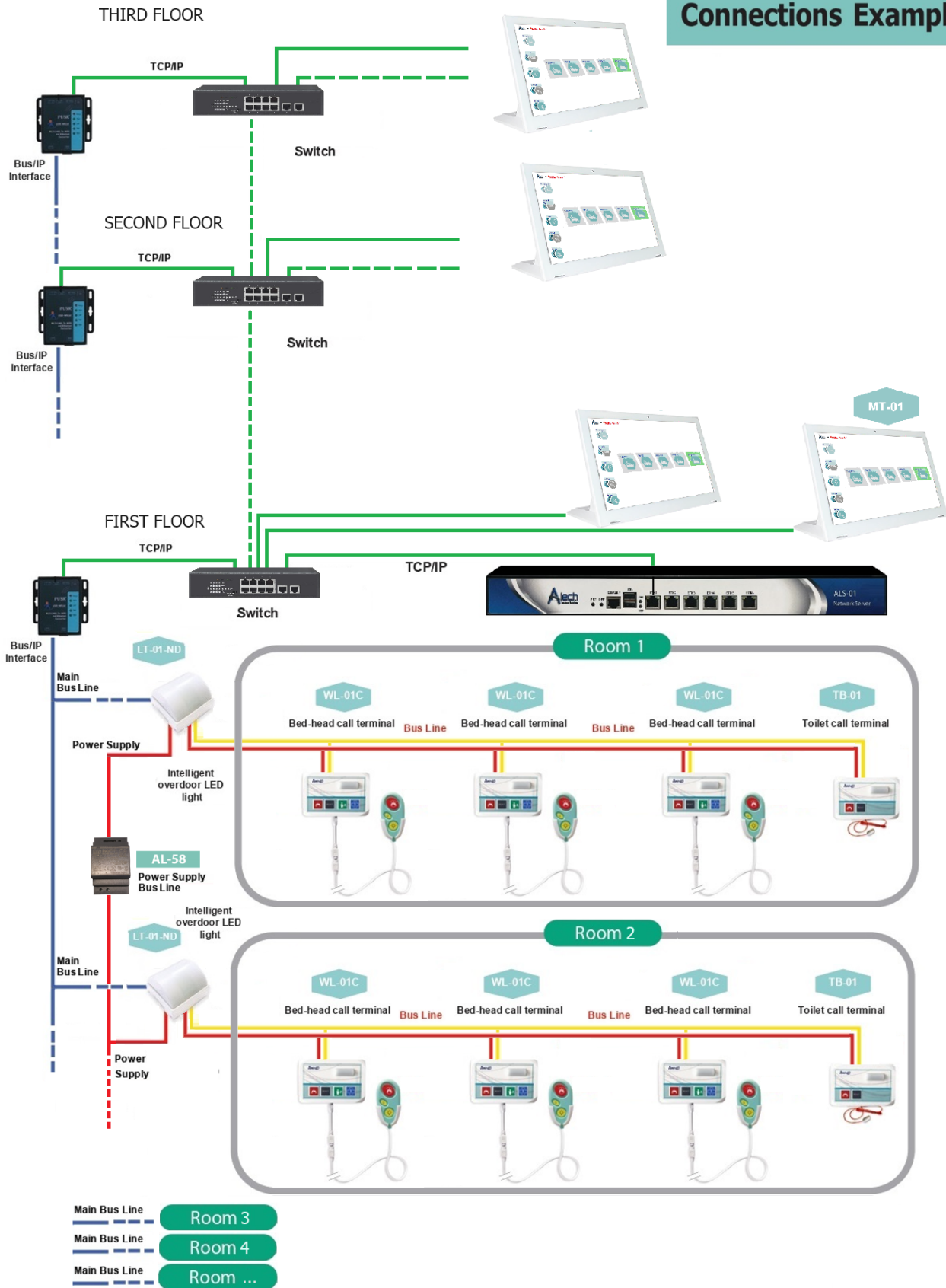
MT-01
DESK MONITOR
NURSE STATION

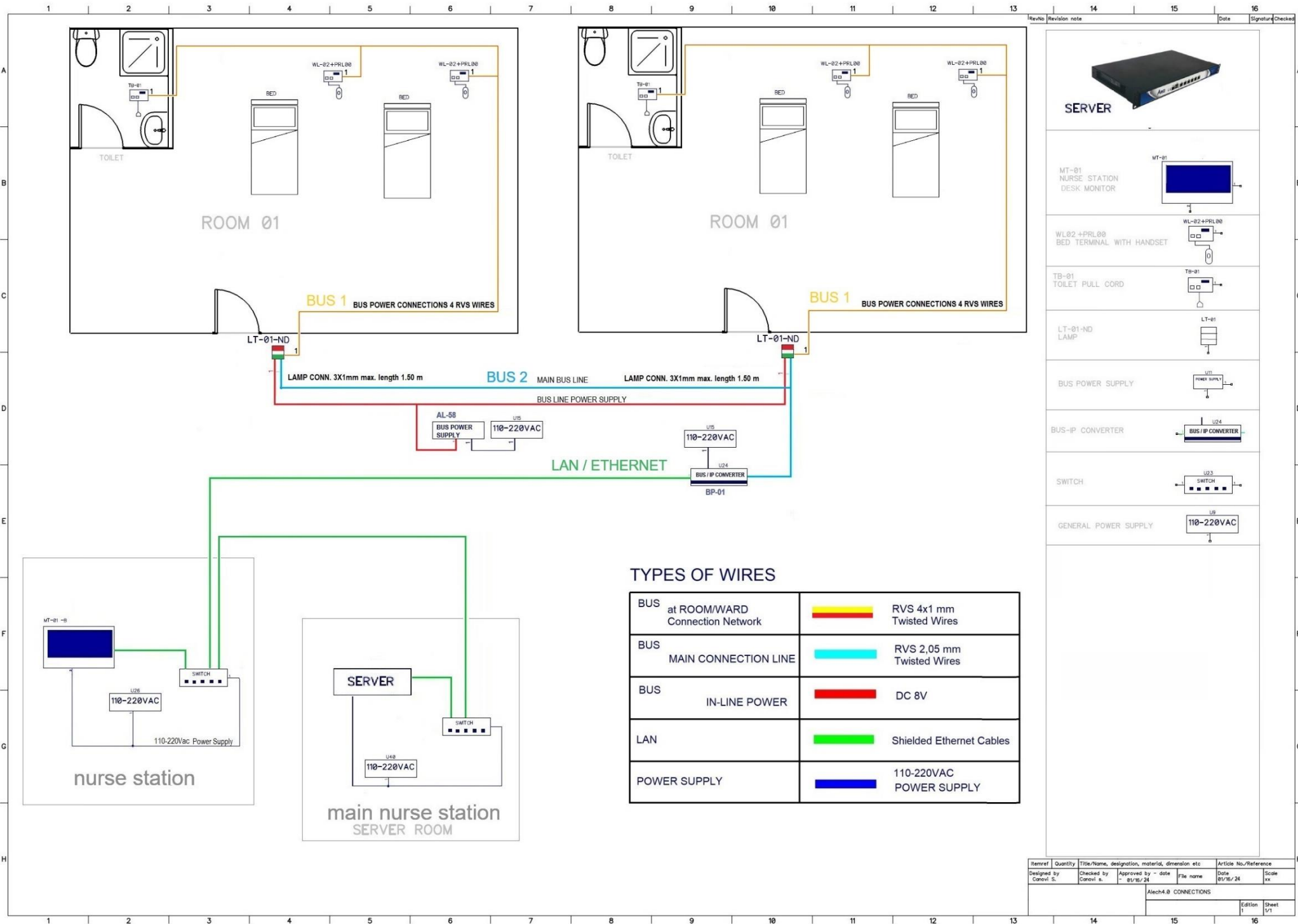


SERVER





NCS MANAGEMENT SOFTWARE LICENSE
Server SW LICENSE
HardWare + SoftWare

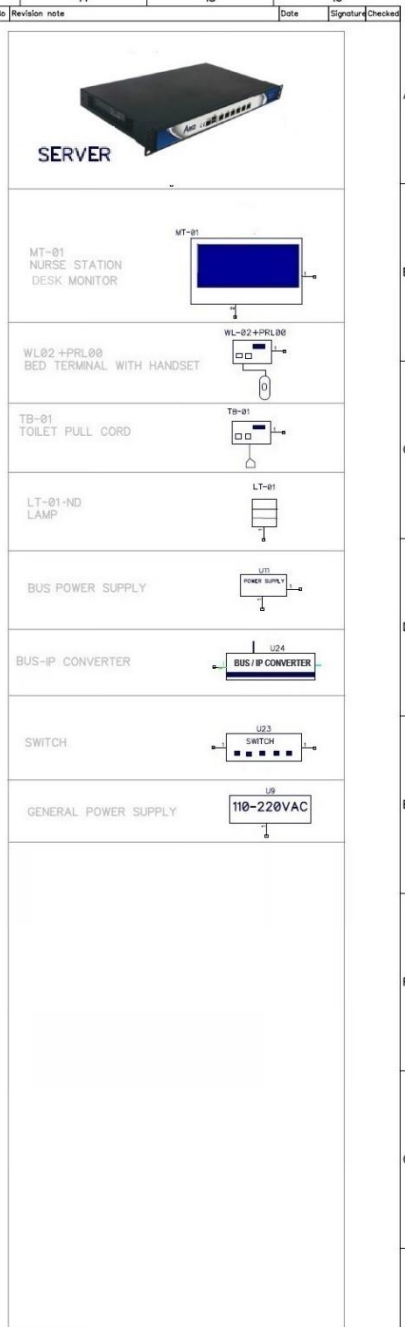
Connections Example





TYPES OF WIRES

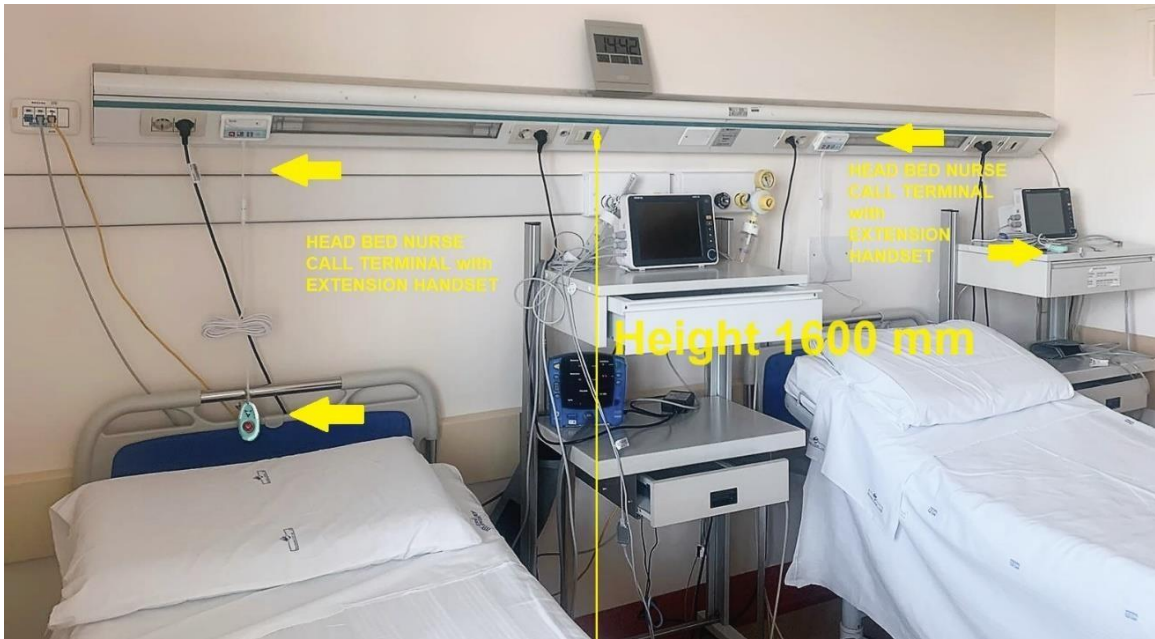
BUS at ROOM/WARD Connection Network		RVS 4x1 mm Twisted Wires
BUS MAIN CONNECTION LINE		RVS 2,05 mm Twisted Wires
BUS IN-LINE POWER		DC 8V
LAN		Shielded Ethernet Cables
POWER SUPPLY		110-220VAC POWER SUPPLY



Item/Ref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
Designed by	Canovi S.	Checked by	Canovi S.
Approved by - date	-	File name	01/10/24
Date	01/10/24	Scale	xx
Alech4.0 CONNECTIONS			
			Edition 1
			Sheet 1/1

BEDHEAD CALL TERMINALS

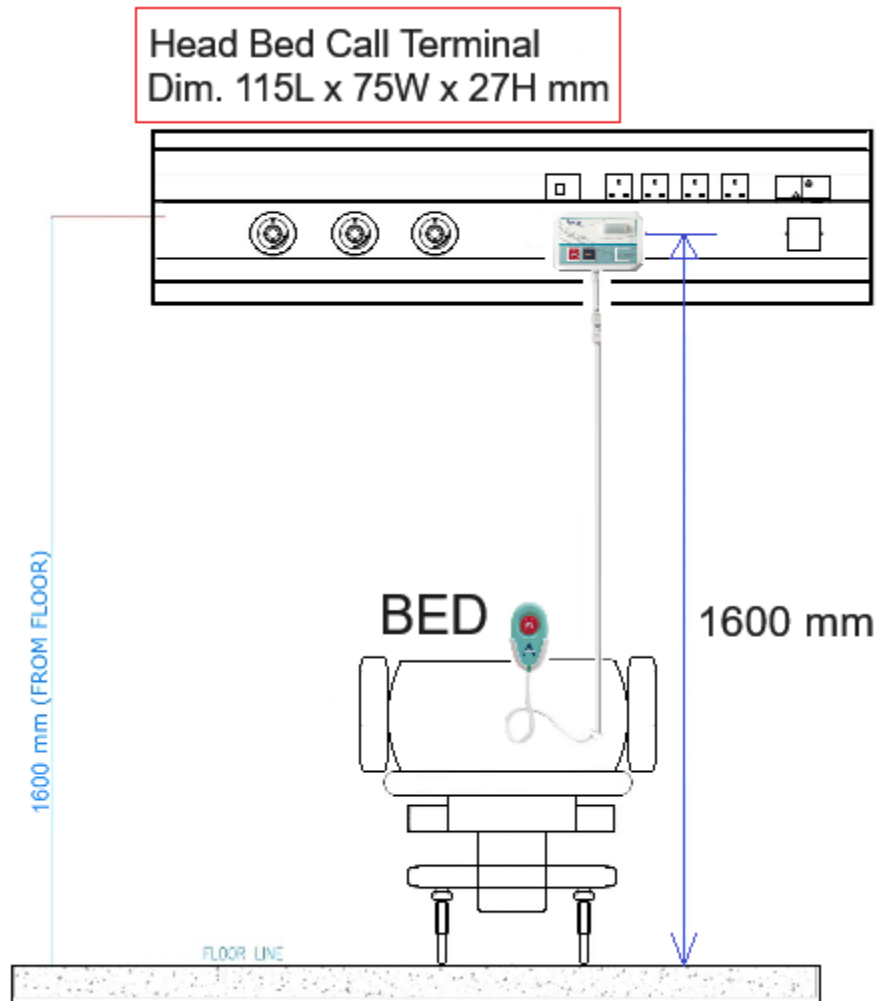
The BEDHEAD CALL TERMINALS should be wall-mounted at a comfortable height, right at the head of the patient's bed and allowing the extension handset to reach the patient hand comfortably.

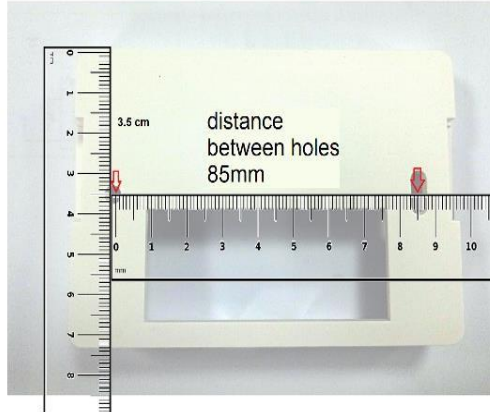
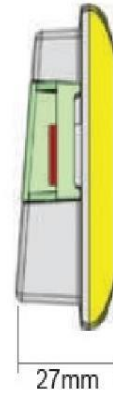


Wall-mounting height from floor: +/- 1600 mm (approx.)

Dimensions of the rear fixing holder of the bedhead call terminal. 105x70x20 mm

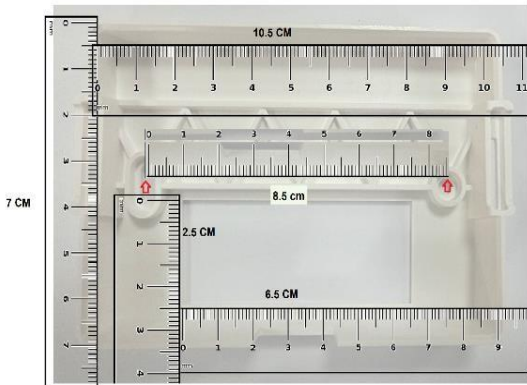
Distance of the fixing holes on holder: 85 mm





holes for fixing the holding case on wall

8.5 cm



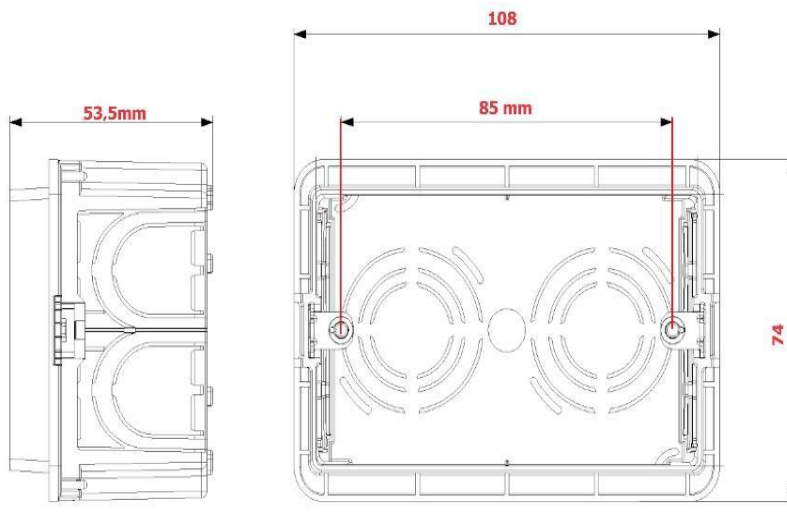
105 mm x 70 mm x 20 mm holding case

window for wiring 25 mm x 65 mm



503e

Flush-mounting box 3 modules 108x74x53,5mm (model BTicino 503E or similar) with the fixing inner holes 85 mm

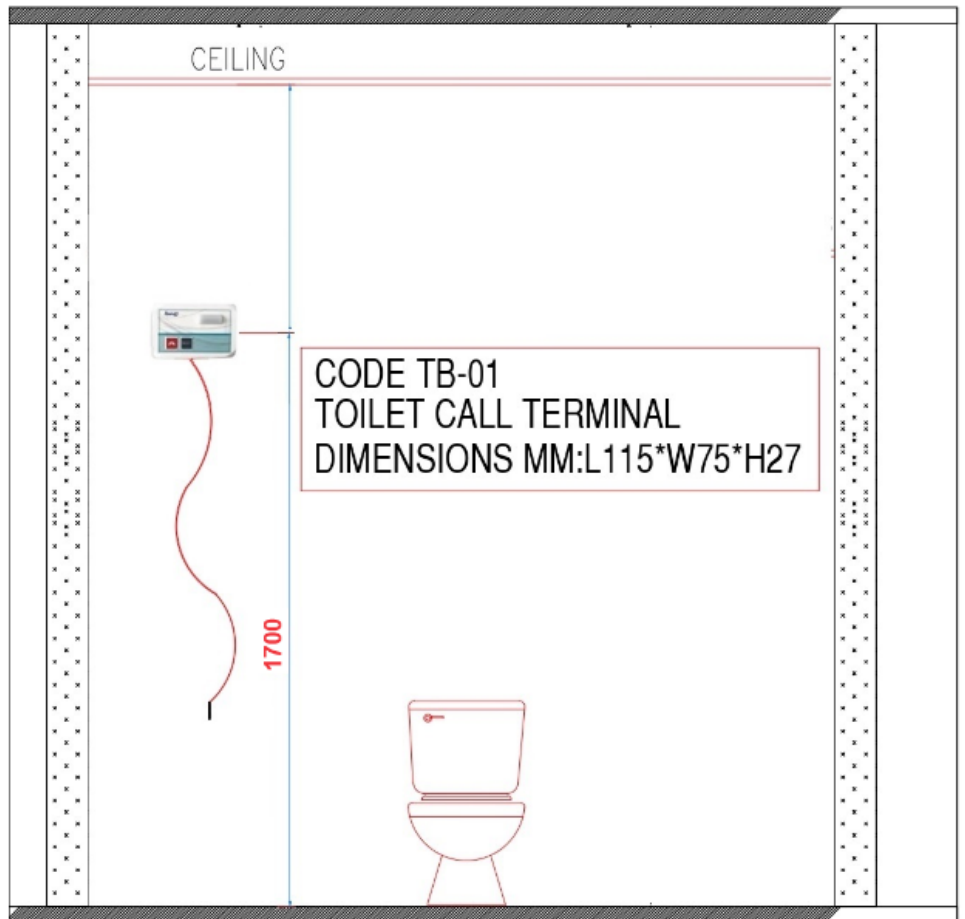


3 MODULI

Marca	BTICINO
Codice articolo	503E
Ean	8012199051260

Flush-mounting box dimensions: 108x74x53,5mm (model 503E or similar)

The BATHROOM CALL TERMINALS should wall mounted at circa 1700 mm from the floor. This height allows the pulling of the calling cord in a natural way and consents also the nurse to easily reach the RESET button placed on the front panel of the device.



LT-01-ND



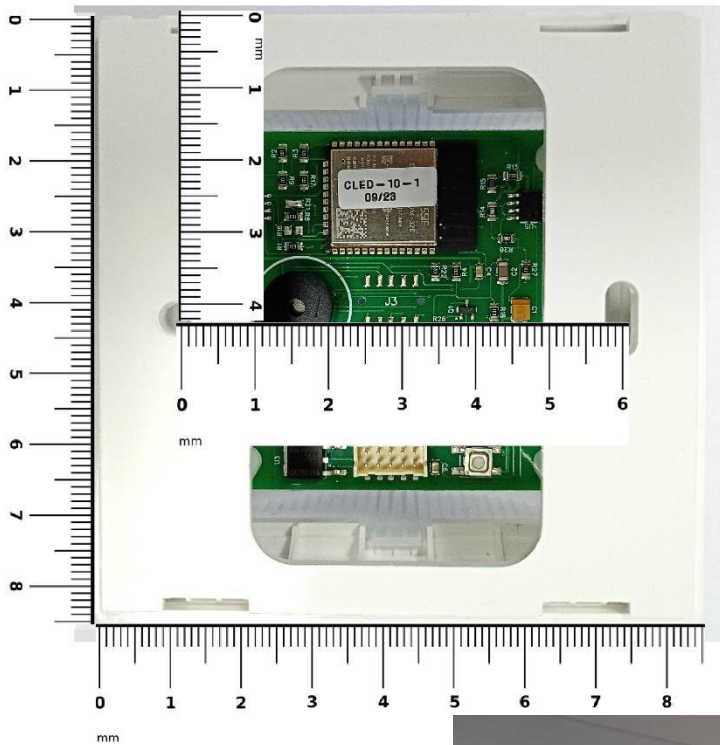
Overdoor / outdoor Warning LED Light and Room-Calls Controller
Those warning lights are usually installed outdoors the patient's room and over the door for signaling that an assistance request call is been made inside that specific room.

Dimensions of the device: 8.5x8.5x8.5x5,5mm
Dimensions of the rear fixing holder. 8.5x8.5 mm

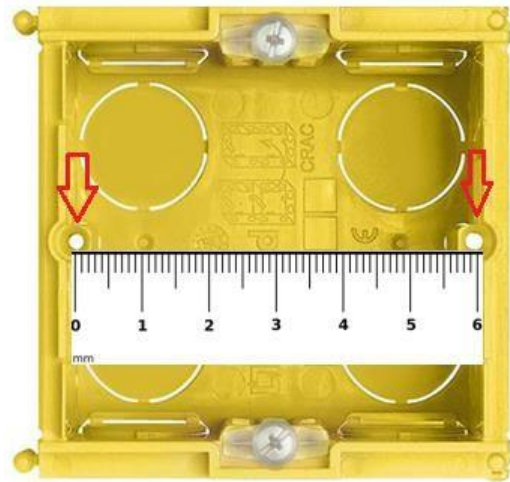
Distance of the fixing holes on rear holder: 60mm

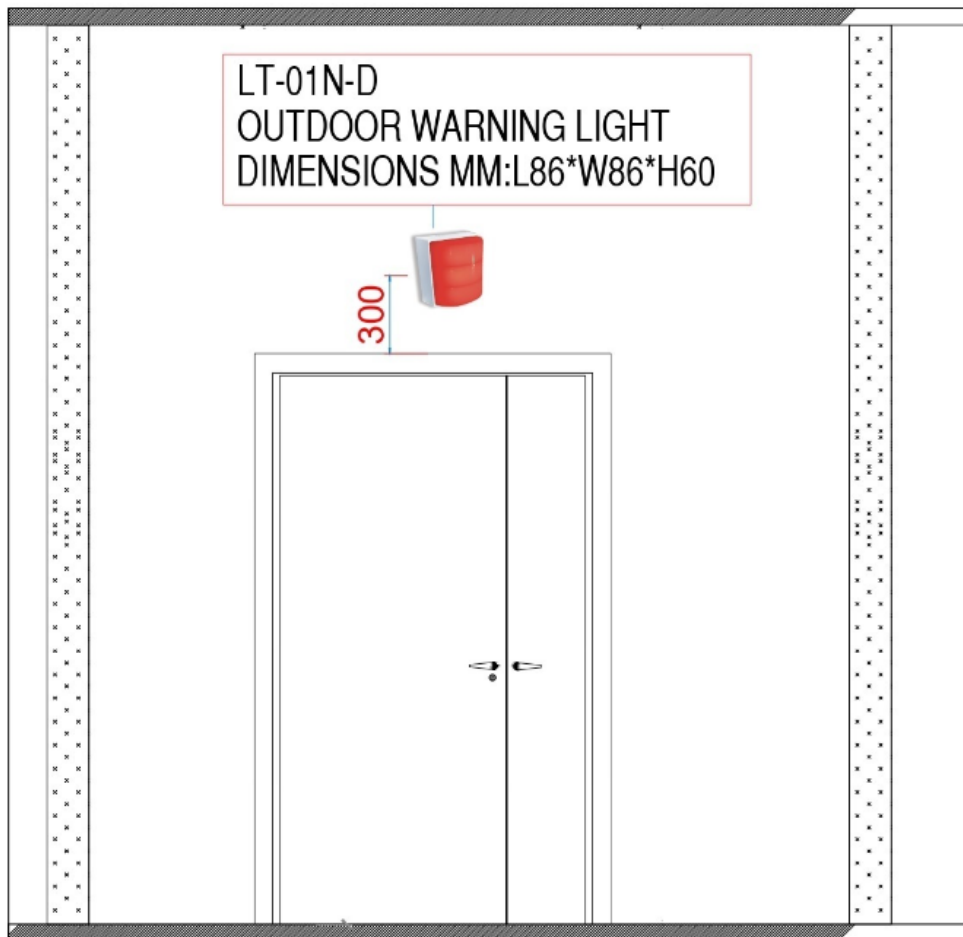


8,5 x 8,5 x 5,5 cm
fixing holes 6 cm



The overdoor warning light Can be set with Flush-mounting box
2 modules model 502E
height: 71mm x length: 71mm x deep: 53,5mm





OUTDOOR WARNING LIGHT INSTALLATION DETAILS IN
WALL MOUNTED